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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 19, 2013

INFORMATION COPY

MR RANDY BLACK
MANAGER OF PRODUCTION OPERATIONS GCBU
BURLINGTON RESOURCES OIL & GAS COMPANY LP
600 N DAIRY ASHFORD RD WESTLAKE 3, 15012
HOUSTON TX 77079-

Standard Permit Registration Number:	108166 Renewal Date: March 19, 2023
Location:	From Whitsett go NE on FM 99 4.9 mi continue straight on FM 1091 7.7 mi turn L on FM 882 go 4.3 mi turn R on CR 246 go 1.3 mi lease rd will be on L follow lease rd 1.0 mi to site entrance on L
City/County:	Whitsett, Live Oak County
Project Description/Unit:	Sugarkane CTB - Baker Dehy Unit
Regulated Entity Number:	RN105698112
Customer Reference Number:	CN602989436
New or Existing Site:	Existing
Affected Permit (if applicable):	PBR 87632
Standard Permit Type:	Oil and Gas Production Facilities

Burlington Resources Oil & Gas Company LP has registered the emissions associated with the Sugarkane CTB - Baker Dehy Unit under the standard permit listed above as authorized by the Commissioners pursuant to Title 30 Texas Administrative Code § 116.602 (30 TAC § 116.602, effective 2/27/2011). Per your request, upon issuance of this Standard Permit, PBR 87632 will be voided. Emissions are listed on the attached table. For rule information see www.tceq.texas.gov/permitting/air/nav/standard.html. Planned MSS emissions for engine starter vents, engine blowdowns and VRU downtime have been reviewed. These authorized MSS emissions are included on the emissions table. No other planned MSS emissions will be authorized under this registration. The company is also reminded that these facilities may be subject to and must comply with other state and federal air quality requirements. In addition, under the applicability section for all Standard Permits, § 116.610(a)(2) states that "Construction or operation of the project must be commenced prior to the effective date of a revision to this subchapter."

If you have questions, please contact Ms. Sally Bittick at (512) 239-5226. This action is taken under authority delegated by the Executive Director of the TCEQ.

Sincerely,

Anne M. Inman, P.E., Manager
Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality
cc: Air Section Manager, Region 14 - Corpus Christi

RECEIVED
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TCEQ
FIELD OPS/REGION 14

Project Number: 190124

Standard Permit Maximum Emission Rates Table
Permit Number 108166

The facilities and emissions included in this table have been represented and reviewed as the maximum emissions authorized by this standard permit registration.

ESTIMATED EMISSIONS																
EPN / Emission Source	VOC		NOx		CO		$PM_{10\&2.5}$		SO_2		H_2S		HCHO		Benzene	
	lbs/ hr	tpy	lbs/ hr	tpy	lbs/ hr	tpy	lbs/ hr	tpy	lbs/ hr	tpy	lbs/ hr	tpy	lbs/ hr	tpy	lbs/ hr	tpy
Normal Operations																
COMP-01 / Compressor Engine 1	1.48	6.48	2.95	12.92	4.43	19.40	0.05	0.22	0.01	0.04			0.27	1.18	0.01	0.04
COMP-02 / Compressor Engine 2	1.39	6.09	2.78	12.18	4.17	18.26	0.05	0.22	0.01	0.04			0.58	2.54	0.01	0.03
FUG / Site Fugitives	2.00	8.79									<0.01	<0.01			0.02	0.09
REB-1 / Glycol Reboiler 1	<0.01	0.01	0.05	0.22	0.04	0.18	<0.01	0.02	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01
REB-1/DEHY-SV / Glycol Dehy Still Vent	0.78	3.41									0.01	0.05			0.04	0.17
FL-3/TK-19 / Condensate Storage Tank (Baker)	1.47	5.15									<0.01	<0.01			0.01	0.01
FL-3/TK-20 / Produced Water Storage Tank (Baker)	0.04	0.17									<0.01	<0.01			<0.01	<0.01
TK-AF / Antifreeze Liquid Storage	0.50	0.01														
TK-LO / Lube Oil Liquid Storage	<0.01	<0.01														
TK-SCAV / H_2S Scavenger Liquid Storage	<0.01	<0.01														
VRU/TRUCK1 / Condensate and Slop Tank Truck Loading (Sugarkane)	0.63	0.47													<0.01	<0.01
VRU/TRUCK2 / Produced Water Tank Truck Loading (Sugarkane)	0.01	<0.01													<0.01	<0.01
FL-3/TRUCK3 / Condensate Tank Truck Loading (Baker)	1.58	0.72													0.01	<0.01
FL-3/TRUCK4 / Produced Water Tank Truck Loading (Baker)	0.02	<0.01													<0.01	<0.01
FL-1 / Flare Combustion (assist and pilot)	0.01	0.04	0.22	0.97	0.45	1.97	<0.01	<0.01	0.03	0.13	<0.01	<0.01			<0.01	<0.01
FL-2 / Flare Combustion (assist and pilot)	0.01	0.04	0.22	0.97	0.45	1.97	<0.01	<0.01	0.03	0.13	<0.01	<0.01			<0.01	<0.01
FL-3 / Flare 3 (Baker waste gas, assist and pilot)	0.01	0.04	0.81	2.34	1.62	4.70	<0.01	<0.01	0.04	0.15	<0.01	<0.01			<0.01	<0.01

Scheduled Maintenance, Startup and Shutdown Events																
COMP-01-SV / Compressor Engine 1 Starter Vent	16.88	0.44									0.02	<0.01			0.07	<0.01
FL-1-SMSS/COMP-01-BD / Compressor Engine 1 Blowdown	0.26	0.01									<0.01	<0.01			<0.01	<0.01
COMP-02-SV / Compressor Engine 2 Starter Vent	16.88	0.44									0.02	0.02			0.07	<0.01
FL-1-SMSS/COMP-02-BD / Compressor Engine 2 Blowdown	0.24	0.01									<0.01	<0.01			<0.01	<0.01
FL-2-SMSS /TK-01 thru TK-08 / Condensate Tanks at Sugarkane (during VRU downtime)	2.14	1.10									<0.01	<0.01			0.01	<0.01
FL-02-SMSS/TK-09 / Slop Tank at Sugarkane (during VRU downtime)	0.18	0.05													<0.01	<0.01
FL-2-SMSS/TK-10 thru TK-18 / Produced Water Tank at Sugarkane (during VRU downtime)	0.08	0.03									<0.01	<0.01			<0.01	<0.01
FL-2-SMSS/TRUCK1 / Condensate and Slop Tank Truck Loading at Sugarkane (during VRU downtime)	1.58	0.09													0.01	<0.01
FL-2-SMSS/TRUCK2 / Produced Water Tank Truck Loading at Sugarkane (during VRU downtime)	0.02	<0.01													<0.01	<0.01
FL-1-SMSS / Flare 1 (engine blowdown waste gas)			0.24	0.01	0.48	0.01	<0.01	<0.01	0.04	<0.01						
FL-2-SMSS / Flare 2 (tanks waste gas during VRU downtime)			0.80	0.30	1.59	0.58	<0.01	<0.01	0.04	0.02						
TOTAL EMISSIONS (TPY):		**33.60**		**29.91**		**47.07**		**0.46**		**0.52**		**0.08**		**3.72**		**0.35**
MAXIMUM OPERATING SCHEDULE:			**Hours/Day**	24		**Days/Week**	7			**Weeks/Year**	52			**Hours/Year**		8760

VOC - volatile organic compounds
NO_x - total oxides of nitrogen
CO - carbon monoxide
PM_{10} - particulate matter equal to or less than 10 microns in size
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in size
SO_2 - sulfur dioxide

**Fugitive emissions are an estimate only and should not be considered as a maximum allowable

TECHNICAL REVIEW: AIR QUALITY STANDARD PERMIT FOR OIL AND GAS HANDLING AND PRODUCTION FACILITIES

Permit No.:	108166	***Company Name:***	Burlington Resources Oil & Gas Company LP	***APD Reviewer:***	Ms. Sally Bittick
Project No.:	190124	***Site/Area Name:***	Sugarkane CTB – Baker Dehy	***SP No.:***	6002 - NON RULE 2011-FEB-27

GENERAL INFORMATION			
Regulated Entity No.:	RN105698112	**Project Type:**	Standard Permit Application
Customer Reference No.:	CN602989436	**Date Received by TCEQ:**	March 8, 2013
Account No.:	None	**Date Received by Reviewer:**	March 12, 2013
City/County:	Whitsett, Live Oak County	**Physical Location:**	From Whitsett go NE on FM 99 4.9 mi continue straight on FM 1091 7.7 mi turn L on FM 882 go 4.3 mi turn R on CR 246 go 1.3 mi lease rd will be on L follow lease rd 1.0 mi to site entrance on L

CONTACT INFORMATION					
Responsible Official/Primary Contact Name and Title:	Mr. Randy Black Manager Of Production Operations GCBU	**Phone No.:** **Fax No.:**	(832) 486-6508 (832) 486-6431	**Email:**	randy.c.black@conocophillips.com
Technical Contact/Consultant Name and Title:	Mr. James Woodall Sr. Environmental Specialist	**Phone No.:** **Fax No.:**	(832)486-6508 (832) 486-6431	**Email:**	james.woodall@conocophillips.com

GENERAL RULES CHECK	YES	NO	COMMENTS
Is confidential information included in the application?		X	
Are there associated NSR or Title V permits at the site?		X	
Are there any registrations or permits that will be incorporated into this standard permit and voided upon issuance of this standard permit?	X		PBR 87632 will be voided upon issuance of this standard permit.
Is the application for renewal of an existing standard permit?		X	
Was the TCEQ Oil and Gas Emission Calculation Spreadsheet (or equivalent) included in the application?	X		
Was an impacts evaluation included in the application?	X		
Have all existing affected sources been considered in the scope?	X		
Were appropriate gas and liquid analyses included in the application?	X		
Site-specific gas and liquid analysis used? If representative analysis used provide justification.	X		Ethridge B1 – Low Pressure Separator (same formation) Laird B1 – High Pressure Separator (same formation)
Extended analysis, including benzene?	X		
Is the application certified?	X		

NONATTAINMENT AND PSD CHECK	YES	NO	COMMENTS
Is the site located in a nonattainment area?		X	
Is the project major or is the site major for nonattainment source levels?	N/A		
Is the projects potential to emit of VOC or NOx increasing above the applicable nonattainment major modification level?	N/A		
Is the project's potential to emit of VOC or NOx increasing above the nonattainment netting trigger?	N/A		
Does NOx Cap and Trade apply to this registration?		X	
Are emissions of any criteria pollutant increasing by 250 tpy at an unnamed source?		X	
Are emissions increasing above the PSD significance levels at an existing PSD major source site?		X	

MAINTENANCE, STARTUP, AND SHUTDOWN (MSS) EMISSIONS	YES	NO	COMMENTS
Are planned MSS emissions being registered with this authorization? *MSS emissions for all planned MSS activities must be registered for all oil and gas sites beginning January 5, 2014.*	X		

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Are back-up control/recovery devices in place or do any alternate operations occur during any planned downtime of control/recovery devices, if necessary to meet the limitations of the standard permit?	X		
Have any emissions associated with all planned MSS events/activities been estimated and calculations provided?	X		
Are any engine/compressor start-ups associated with preventative system shutdown activities being authorized as part of normal operation?	X		
Prior to operation, alternative operating scenarios to divert gas or liquid streams are registered and certified with supporting documentation.	X		See note below.
Shutdowns will not result in emissions greater than 4.0 lb/hr.	X		
Start-up emissions are controlled to a minimum of 98% efficiency for VOC and H_2S.	X		

Note: This submittal includes emissions representation for alternate operational scenarios during maintenance event. The first scenario occurs when the VRU is down for maintenance and the flare is used as a back-up to control the emissions. Emissions related to the use of the flare to control emissions from the tanks are represented in this application as an SMSS event.

The second scenario occurs when the engines located at the site goes down for maintenance. Engine downtime would result in gas released from the compressors and in turn from the engines starter vent. All gas from the blowdowns is sent to the flare. The proposed site emissions include this maintenance event and the resulting combustion emissions.

OIL AND GAS FACILITY GENERAL INFORMATION			
Natural Gas Throughput (MMSCF/day):	15.0	**H_2S Content of Inlet Gas:**	150 ppmv
Oil Throughput (bbl/day):	---	**Is the gas sweet or sour?**	Sour
Condensate/ Oil Throughput (bbl/day):	Sugarkane = 500 Baker = 50	**Is this an existing site?**	Yes
Produced Water Throughput (bbl/day):	Sugarkane = 400 Baker = 200	**Has the site been registered before?**	Yes; PBR 87632 will be voided upon issuance of this permit.

DESCRIBE OVERALL PROCESS AT THE SITE

On behalf of Burlington Resources Oil & Gas Company LP (Burlington), TITAN Engineering, Inc. (TITAN) is submitting this Oil and Gas Standard Permit (SP) Registration to the Texas Commission on Environmental Quality (TCEQ) for operations at Sugarkane CTB — Baker Dehy Unit (the Site) located near Whitsett in Live Oak County, TX. Upon authorization, this standard permit will authorize the following project:

- Two (2) compressor engines and associated starter vents and blowdowns;
- One (1) glycol dehydration unit;
- Nine (9) controlled atmospheric condensate storage tanks and associated loading;
- Ten (10) controlled atmospheric produced water storage tank and associated loading;
- One (1) controlled atmospheric slop storage tank and associated loading;
- One (1) vapor recovery unit (VRU) control device;
- Three (3) flare combustion control devices; and,
- Piping and fugitive components.

TITAN and Burlington Resources believe that the Site and its associated air emissions meet the requirements of the TCEQ Non-Rule Standard Permit for Oil and Gas Handling and Production Facilities and 30 TAC §116.610, §116.611, §116.614, and §116.615. Please note that this site was permitted under a Permit by Rule (Permit number 87632). Please void the PBR registration for this Site upon approval of this Standard Permit submittal and note that with the inclusion of the Core Data form, a name change is requested for this RN. Additionally, this Site was previously permitted under CN601674351, for that reason a Core Data Form is being included in this registration to update the current customer and site information on the Central Registry (CR) to CN602989436.

TECHNICAL REVIEW: AIR QUALITY STANDARD PERMIT FOR OIL AND GAS HANDLING AND PRODUCTION FACILITIES

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Project No.:	190124	*Site/Area Name:*	Sugarkane CTB – Baker Dehy	*SP No.:*	6002 - NON RULE 2011-FEB-27

DESCRIBE PROJECT AND INVOLVED PROCESS

This Standard Permit registration is being submitted to authorize the co-location of two sites; Sugarkane CTB and Baker Dehy Unit. The aggregate site includes two (2) compressor engines and associated blowdown and starter vent events, one (1) glycol dehydration unit, nine (9) controlled atmospheric condensate storage tanks and associated loading, ten (10) controlled atmospheric produced water storage tanks and associated loading, one (1) controlled atmospheric slop storage tank and associated loading, one (1) vapor recovery unit (VRU) control device, three (3) flare combustion control devices, atmospheric chemical and lube oil storage tanks and piping and fugitive components (the Project) at the Sugarkane CTB — Baker Dehy Unit (the Site) located in Live Oak County, Texas.

Normal Operations

The aggregated Site will receive High Pressure (HP) gas, Low Pressure (LP) gas, and liquids (condensate and water) from eight (8) wells upstream. The gas off the HP and LP separators at the well sites will be metered and enter into their respective HP and LP headers and pipelines. LP gas will flow through the LP scrubber and be sent through compression (Facility Identification Numbers [FINs] COMP-01 and COMP-02) before entering the HP line. Fuel gas to the compressor is injected with H_2S scavenger liquid, which will treat the gas H_2S to 10 ppm or less. HP gas flows into the Site and comingles with the compressor discharge. The combined streams will then pass through a slug catcher and then be treated in a glycol contactor tower. The treated gas is then metered and sent to sales.

The tri-ethylene glycol used in the contactor tower is part of a regenerative system located at the Baker Dehy Unit pad. The rich glycol is first routed through a flash tank which collects off gas and is recompressed and recycled throughout the Site. The rich glycol is sent from the flash tank through the regeneration unit where it is heated (FIN REB-1) and the water is removed, then resent to the contactor tower as lean glycol. Emissions associated with the dehy regenerator still vent (FIN DEHY-SV) are controlled by the BTEX condenser and sent back to the reboiler for combustion with the fuel gas.

Pressurized liquids at the Baker site will be measured and sent to a condensate (FIN TK-19) and produced water tanks WIN TK-20). Emissions from both tanks are captured and controlled with a 98% efficiency by a flare combustion control device (FIN FL-3). The tanks are loaded out periodically by truck (FIN TRUCK3 and TRUCK4).

Pressurized liquids at the Sugarkane CTB will be measured and flow through a separator at the Site. Condensate is sent to and stored in condensate storage tanks (FINs TK-01 through TK-08). The water is routed to the produced water tank (FINs TK-10 through TK-18). The free liquids from the compressor scrubbers, fuel gas scrubbers, and slug catcher will go to the slop tank (FIN TK-09). Emissions from the condensate tanks (FINs TK-01 through TK-08), slop tank (FIN TK09), and the produced water tank (FINs TK-10 through TK-18) will be routed to a VRU to be captured and controlled at a 100% efficiency. A second flare (FIN FL-2) serves as a back-up during VRU downtime. As demonstrated in the calculations, assist gas is sent to all flares to ensure that the waste gas stream can sustain combustion. Flash off gas from the water knockout separator is recirculated to the compressor, and some condensate continues to the condensate pipeline for sales.

All Sugarkane CTB tanks are loaded out periodically by truck (FINs TRUCK1 and TRUCK2), emissions from which are also controlled by the VRU and the flare during downtime. The Site will also emit emissions due to equipment component leaks (FIN FUG) and small storage tanks for engine operation (FINs TK-AF, TK-LO, and TK-SCAV).

Scheduled Maintenance Startup and Shutdown Events

In accordance with TCEQ guidance and the non-rule Oil & Gas Standard Permit, a representation of planned Maintenance, Startup and Shutdown events are included in this Standard Permit registration in addition to the normal operating scenario.

It is conservatively planned that the VRU will be down for maintenance 8% of the year. During this time, any emissions from the liquids going to the storage tanks (FINs TK-01 throughTK-18) and being loaded out via truck (FINs TRUCK1 and TRUCK2) would be controlled by the flare (FIN FL-2-SMSS).

Additionally, during engine operational adjustments, the volume of gas in the compressor units will blow down, resulting in emissions. This blowdown event (FINs COMP-01-BD and COMP02-BD) are captured and routed to the flare (FIN FL-1-SMSS) and emissions are controlled at a 98% capture and combustion efficiency. As this engine is brought back online, starter vent (FINs COMP-01-SV and COMP-02-SV) emissions occur to atmosphere as natural gas is routed through the engine as it builds up pressure.

The TCEQ Oil and Gas Spreadsheet was used to verify emissions from the engine, flare, fugitives and loading. Glycol Dehy emissions were verified by GRI-GLYCalc. WinSim was used to calculate tank flash emissions and AP-42 Chapter 7 for working and breathing emissions. Tanks 4.0 was used to verify emissions from the antifreeze and lube oil tanks.

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Project No.:	190124	***Site/Area Name:***	Sugarkane CTB – Baker Dehy	***SP No.:***	6002 - NON RULE 2011-FEB-27

RULE CHECK		
REQUIREMENTS	YES, NO, or N/A	COMMENTS
What is the distance to the nearest receptor?	---	Actual distance: 1,043 feet.
If the distance to the nearest receptor is less than 50 feet, are fugitive components used for isolation or safety purposes the only emission sources located one-half the width of any applicable easement?	N/A	
Are the total benzene emissions greater than 0.039 /b/hr?	YES	Total benzene emissions: 0.26 lb/hr
Are the project's maximum predicted concentrations of benzene at the nearest receptor equal to or less than 10% of the appropriate effects screening level (ESL)? Benzene short-term ESL: 170 µg/m³ Benzene long-term ESL: 4.5 µg/m³ *If "NO," an impacts evaluation for benzene must be provided demonstrating that the site meets the protectiveness limits.*	YES	$E_{max\ hourly}$ = 7.68 lb/hr $E_{max\ annual}$ = 5.82 lb/hr
What is the distance to the nearest property line?	---	Actual distance: ≥ 50 feet.
If the distance to the nearest property line or receptor is less than 50 feet, are fugitive components used for isolation or safety purposes the only emission sources located one-half the width of any applicable easement?	N/A	
Are the total H_2S emissions greater than 0.025 lb/hr?	YES	Total H_2S emissions: 0.05 lb/hr
Are the project's maximum predicted concentrations of H_2S at the nearest property line equal to or less than the significant impact level (SIL)? H_2S hourly SAAQS: 108 µg/m³ *If "NO," an impacts evaluation for H_2S must be provided demonstrating that the site meets the protectiveness limits.*	YES	$E_{max\ hourly}$ = 3.40 lb/hr
Are the total SO_2 emissions greater than 2.0 lb/hr?	NO	Total SO_2 emissions: 0.20 lb/hr
Are the project's maximum predicted concentrations of SO_2 at the nearest property line equal to or less than the significant level (SIL)? SO_2 hourly SAAQS: 196 µg/m³ *If "NO," an impacts evaluation for SO_2 must be provided demonstrating that the site meets the protectiveness limits.*	N/A	
Are the total NOx emissions greater than 4.0 lb/hr?	YES	Total NOx emissions: 8.07 lb/hr
Are the project's maximum predicted concentrations of NOx at the nearest property line equal to or less than the significant impact level (SIL)? NOx hourly SAAQS: 188 µg/m³ *If "NO," an impacts evaluation for NOx must be provided demonstrating that the site meets the protectiveness limits.*	YES	Hourly = 118.26 µg/m³ Annual = 23.86 µg/m³
Are there any engines or turbines located at the site?	YES	See engine table below.
Do the engines or turbines meet the emission and performance standards listed in Table 6?	YES	
Are there any liquid fueled engines used for back-up power generation and periodic power? *If "YES," the fuel must have less than or equal to 0.05% sulfur and operate less than 876 hours per rolling 12-month period.*	NO	
If the site has access to an electric service, do the engines or turbines meet the technical requirements of the Air Quality Standard Permit for Electric Generating Units (EGU)?	N/A	
Are there any open-topped tanks or ponds located at the site?	NO	
Is the potential to emit less than or equal to 1 tpy VOC and 0.1 tpy H_2S for the open-topped tanks or ponds?	N/A	
Will the site comply with all fugitive requirements listed in the Best Management Practices subsection? *If Leak Detection and Repair (LDAR) alternative fugitive monitoring is required, Table 9 must be met.*	YES	__x__ < 10 tpy VOC or < 1 tpy H_2S _____ ≥ 10 tpy VOC or ≥ 1 tpy H_2S _____ ≥ 25 tpy VOC or ≥ 5 tpy H_2S LDAR program: _____
Are there any tanks or vessels located at the site?	YES	

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Will all tanks and vessels be of a color that minimizes the effects of solar heating as stated in the rule?	YES	
When relying on control or recovery devices in emission calculations, will the owner/operator monitor and keep records according to Table 8?	YES	
Are any of the following units needed to meet the limitations of the rule?	YES	__x__ process reboilers, heaters, and furnaces (used for control) __x__ vapor recovery units _____ thermal oxidation and vapor combustion devices (not including flares)
Will the appropriate level of monitoring be implemented based on any reduction efficiencies claimed?	YES	
Are there any flares or thermal oxidizers located at the site needed to meet the limitations of the rule?	YES	
Is the site in compliance with all other applicable requirements of the standard permit?	YES	

STATE AND FEDERAL STANDARDS APPLICABILITY		
STANDARDS	YES, NO, or N/A	COMMENTS
NSPS Subpart A: General Provisions	YES	
NSPS Subpart K, Ka, Kb: Storage Vessels for Petroleum Liquids	NO	
NSPS Subpart GG: Stationary Gas Turbines	N/A	
NSPS Subpart KKK: Equipment Leaks of VOC from Onshore Natural Gas Processing Plants	NO	
NSPS Subpart LLL: Onshore Natural Gas Processing: SO_2	NO	
NSPS Subpart IIII: Stationary Compression Ignition Internal Combustion Engines	N/A	
NSPS Subpart JJJJ: Stationary Spark Ignition Internal Combustion Engines	YES	This rule applies to Compressor Engine (COMP-01).
NSPS Subpart KKKK: Stationary Combustion Turbines	N/A	
NESHAP Subpart V: Equipment Leaks (Fugitive Emission Sources)	NO	
MACT Subpart H: Organic HAPs from Equipment Leaks	NO	
MACT Subpart HH: HAPs from Oil and Natural Gas Production Facilities	YES	
MACT Subpart HHH: HAPs from Natural Gas Transmission and Storage Facilities	NO	
MACT Subpart YYYY: HAPs from Stationary Combustion Turbines	N/A	
MACT Subpart ZZZZ: HAPs from Stationary Reciprocating Internal Combustion Engines	YES	
Is the site in compliance with all other applicable rules and regulations?	YES	

ENGINE

Engine Identifier (EPN / name)	HP	Hrs of Opr/ yr	Fuel Consum. (Btu/hp-hr)	Rich or Lean Burn	2 or 4 stk	Vendor Data Sheet Included?	Emission Factor / Origin of Emission Factor (g/hp-hr or lb/MMBtu)						Type of Control Devices
							VOC (NMNEHC)	NO_x	CO	SO_2	PM_{10} / $PM_{2.5}$	HC HO	
COMP-01 / Cat G3508 TALE	670	8760	7510	Lean	4	Yes	1.0	2.0	3.0	10 ppm S	0.0099 871	0.0528	SCR Catalyst
COMP-02 / Cat G3508 TALE	630	8760	7820	Lean	4	Yes	1.0	2.0	3.0	10 ppm S	0.0099 871	0.42	Air-Fuel Ration Control

Does NSPS, Subpart JJJJ apply?	Yes	**Why or why not? If yes, how will requirements be met?**	Engine manufacture date: COMP-01 – 9/12/2008, COMP-02 – 1/15/2004.
Does MACT, Subpart ZZZZ apply?	Yes	**Why or why not? If yes, how will requirements be met?**	The site will meet the HAP emissions limits and NSPS JJJJ.

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IMPACT ANALYSIS FOR NO_X

SUMMARY OF NO_X SCREEN3 MODELING RESULTS

OIL AND GAS STANDARD PERMIT REGISTRATION

SUGARKANE CTB - BAKER DEHY UNIT

BURLINGTON RESOURCES OIL & GAS COMPANY LP

FIN	EPN	Description	$PTE_{pollutant}$[a] (lb/hr)	$C_{pollutant}$[b] ($\mu g/m^3$)	$GLC_{pollutant}$[c] ($\mu g/m^3$)	$R_{pollutant}$[d] (lb NO_2/lb NO_x)	$GLC_{pollutant}$[e] ($\mu g/m^3$)	Annual Conversion Factor (CF)	$GLC_{pollutant}$[d] ($\mu g/m^3$)
Normal Operations									
COMP-01	COMP-01	Compressor Engine 1	2.95	12.46	36.76	0.20	7.35	0.08	0.59
COMP-02	COMP-02	Compressor Engine 2	2.78	14.50	40.31	0.20	8.06	0.08	0.64
REB-1	REB-1	Glycol Reboiler No. 1	0.05	441.90	22.10	0.75	16.57	0.08	1.33
FL-1	FL-1	Flare Combustion (normal operations pilot)	0.003	152.30	0.46	0.75	0.34	0.08	0.03
FL-1	FL-1	Flare Combustion (normal operations assist gas)	0.22	12.48	2.75	0.75	2.06	0.08	0.16
FL-2	FL-2	Flare Combustion (normal operations pilot)	0.003	152.30	0.46	0.75	0.34	0.08	0.03
FL-2	FL-2	Flare Combustion (normal operations assist gas)	0.22	12.48	2.75	0.75	2.06	0.08	0.16
FL-3	FL-3	Flare Combustion (normal operations pilot)	0.003	152.30	0.46	0.75	0.34	0.08	0.03
FL-3	FL-3	Flare Combustion (normal operations assist gas)	0.22	12.48	2.75	0.75	2.06	0.08	0.16
FL-3	FL-3	Flare Combustion (normal operations waste gas condensate)	0.58	5.70	3.31	0.75	2.48	0.08	0.20
FL-3	FL-3	Flare Combustion (normal operations waste gas Produced water)	0.01	103.80	1.04	0.75	0.78	0.08	0.06
Maintenance, Startup, and Shutdown									
FL-1-SMSS	FL-1-SMSS	Flare Combustion (engines blowdown waste gas)	0.24	11.72	2.81	0.75	2.11	0.08	0.17
FL-2-SMSS	FL-2-SMSS	Condensate and Slop Waste Gas Combustion (during VRU downtime)	0.78	4.47	3.49	0.75	2.62	0.08	0.21
FL-2-SMSS	FL-2-SMSS	Produced Water Waste Gas Combustion (during VRU downtime)	0.02	72.64	1.45	0.75	1.09	0.08	0.09
					Total Engine NO_2 Concentration ($\mu g/m^3$):		48.26		3.86
					Live Oak County NO_2 Background Concentration ($\mu g/m^3$)[f]:		70.00		28.00
					Total Off-Property Concentration ($\mu g/m^3$):		118.26		23.86
					NO_2 NAAQS ($\mu g/m^3$):		188		188

TECHNICAL REVIEW: AIR QUALITY STANDARD PERMIT FOR OIL AND GAS HANDLING AND PRODUCTION FACILITIES

Permit No.:	108166	*Company Name:*	Burlington Resources Oil & Gas Company LP	*APD Reviewer:*	Ms. Sally Bittick
Project No.:	190124	*Site/Area Name:*	Sugarkane CTB – Baker Dehy	*SP No.:*	6002 - NON RULE 2011-FEB-27

IMPACT ANALYSIS FOR BENZENE

BENZENE EMISSION IMPACT ANALYSIS
OIL AND GAS STANDARD PERMIT REGISTRATION
SUGARKANE CTB - BAKER DEHY UNIT
BURLINGTON RESOURCES OIL & GAS COMPANY LP

Hourly ESL (µg/m3): 170
Annual ESL (µg/m3): 4.5

		Benzene Emissions		Stack Parameters: Distance	Stack Parameters: Height	G	WR		Calculated Health Effects Review	
EPN	FIN	(lb/hr)	(tpy)	(ft)	(ft)	(µg/m³/lb/hr)	(hourly)	(annual)	(lb/hr)	(tpy)
Normal Operations										
COMP-01	COMP-01	0.01	0.04	1450	20	14	3.88%	11.27%	0.47	1.98
COMP-02	COMP-02	0.006	0.03	1480	20	14	2.33%	8.46%	0.28	1.49
FUG	FUG	0.02	0.09	1043	3	293	7.76%	25.37%	0.05	0.21
REB-1	REB-1	0.000001	0.000004	1830	14	76	0.0004%	0.001%	0.00001	0.00004
REB-1	DEHY-SV	0.04	0.17	1830	14	76	15.52%	47.91%	0.35	1.55
FL-3	TK-20	0.005	0.01	1752	30	31	1.94%	2.82%	0.11	0.22
FL-3	TK-21	0.0002	0.001	1752	30	31	0.08%	0.28%	0.004	0.02
VRU	TRUCK1	0.003	0.002	1270	10	264	1.16%	0.56%	0.01	0.01
VRU	TRUCK2	0.0001	0.00001	1270	10	264	0.04%	0.003%	0.0002	0.00003
FL-3	TRUCK3	0.01	0.003	1750	30	31	3.88%	0.85%	0.21	0.07
FL-3	TRUCK4	0.0001	0.00001	1750	30	31	0.04%	0.003%	0.0021	0.00022
FL-1	FL-1	0.000003	0.00001	1420	30	36	0.001%	0.003%	0.0001	0.0002
FL-2	FL-2	0.000003	0.00001	1450	30	36	0.001%	0.003%	0.0001	0.0002
FL-3	FL-3	0.000003	0.00001	1750	30	31	0.001%	0.003%	0.0001	0.0002
Maintenance, Startup, and Shutdown										
COMP-01-SV	COMP-01-SV	0.07	0.002	1450	20	16	27.16%	0.56%	2.89	0.09
FL-1-SMSS	COMP-01-BD	0.001	0.00002	1420	30	36	0.39%	0.01%	0.02	0.0004
COMP-02-SV	COMP-02-SV	0.07	0.002	1480	20	16	27.16%	0.56%	2.89	0.09
FL-1-SMSS	COMP-02-BD	0.001	0.00002	1450	30	36	0.39%	0.01%	0.02	0.0004
FL-2-SMSS	TK-01 through TK-08	0.01	0.004	1450	30	36	3.88%	1.13%	0.18	0.08
FL-2-SMSS	TK-09	0.001	0.0002	1450	30	36	0.39%	0.056%	0.02	0.004
FL-2-SMSS	TK-10 through TK-19	0.0002	0.0001	1450	30	36	0.08%	0.03%	0.004	0.002
FL-2-SMSS	TRUCK1	0.01	0.0004	1450	30	36	3.88%	0.11%	0.18	0.01
FL-2-SMSS	TRUCK2	0.0001	0.000002	1450	30	36	0.04%	0.001%	0.002	0.00004
	Total	0.26	0.35						7.68	5.82

Impacts Analysis:

	Hourly	Annual
Calculated Benzene Emissions (lb/hr):	0.26	0.35
Calculated Benzene Health Effects Review (lb/hr):	7.68	5.82

TECHNICAL REVIEW: AIR QUALITY STANDARD PERMIT FOR OIL AND GAS HANDLING AND PRODUCTION FACILITIES

Permit No.:	108166	*Company Name:*	Burlington Resources Oil & Gas Company LP	*APD Reviewer:*	Ms. Sally Bittick
Project No.:	190124	*Site/Area Name:*	Sugarkane CTB – Baker Dehy	*SP No.:*	6002 - NON RULE 2011-FEB-27

IMPACT ANALYSIS FOR H_2S

H_2S EMISSION IMPACT ANALYSIS

OIL AND GAS STANDARD PERMIT REGISTRATION

SUGARKANE CTB - BAKER DEHY UNIT

BURLINGTON RESOURCES OIL & GAS COMPANY LP

State Property Line Standard (µg/m3): 108

EPN	FIN	Description	H_2S Emissions (lb/hr)	Stack Parameters Distance (ft)	Stack Parameters Height (ft)	G (µg/m³/lb/hr)	WR (hourly)	Calculated Health Effects Review (lb/hr)
Normal Operations								
FUG	FUG	Site Fugitives	0.001	50	3	4375	1.89%	0.0005
REB-1	DEHY-SV	Glycol Dehy Still Vent	0.01	50	14	469	18.89%	0.04
FL-3	TK-20	Condensate Storage Tank at Baker	0.0002	50	30	43	0.38%	0.01
FL-3	TK-21	Produced Water Storage Tank at Baker	0.00001	50	30	43	0.02%	0.0005
FL-1	FL-1	Flare Combustion (normal operations assist, and pilot)	0.00001	50	30	43	0.02%	0.0005
FL-2	FL-2	Flare Combustion (normal operations assist, and pilot)	0.00001	50	30	43	0.02%	0.0005
FL-3	FL-3	Flare Combustion (normal operations waste gas, assist, and pilot)	0.0001	50	30	43	0.19%	0.005
Maintenance, Startup, and Shutdown								
COMP-01-SV	COMP-01-SV	Compressor Engine 1 Starter Vent	0.02	50	20	25	37.77%	1.63
FL-1-SMSS	COMP-01-BD	Compressor Engine 1 Blowdown	0.0002	50	30	43	0.58%	0.01
COMP-02-SV	COMP-02-SV	Compressor Engine 2 Starter Vent	0.02	50	20	25	37.77%	1.63
FL-1-SMSS	COMP-02-BD	Compressor Engine 2 Blowdown	0.0002	50	30	43	0.38%	0.01
FL-2-SMSS	TK-01 through TK-08	Controlled Condensate Tanks Emissions (during VRU downtime)	0.0004	50	30	43	0.76%	0.02
FL-2-SMSS	TK-10 through TK-19	Controlled Produced Water Tank Emissions (during VRU downtime)	0.00002	50	30	43	0.038%	0.001
FL-1-SMSS	FL-1-SMSS	Flare 1 Combustion (Engine blowdown waste gas)	0.0004	50	30	43	0.76%	0.02
FL-2-SMSS	FL-2-SMSS	Flare 2 Combustion (Tanks waste gas during VRU downtime)	0.0004	50	30	43	0.76%	0.02
	Total		0.05					3.40

Impacts Analysis:

	Hourly
Calculated H_2S Emissions (lb/hr):	0.05
Calculated H_2S Health Effects Review (lb/hr):	3.40

TECHNICAL REVIEW: AIR QUALITY STANDARD PERMIT FOR OIL AND GAS HANDLING AND PRODUCTION FACILITIES

Permit No.:	108166	*Company Name:*	Burlington Resources Oil & Gas Company LP	*APD Reviewer:*	Ms. Sally Bittick
Project No.:	190124	*Site/Area Name:*	Sugarkane CTB – Baker Dehy	*SP No.:*	6002 - NON RULE 2011-FEB-27

ESTIMATED EMISSIONS

EPN / Emission Source	VOC		NOx		CO		$PM_{10\&2.5}$		SO_2		H_2S		HCHO		Benzene	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Normal Operations																
COMP-01 / Compressor Engine 1	1.48	6.48	2.95	12.92	4.43	19.40	0.05	0.22	0.01	0.04			0.27	1.18	0.01	0.04
COMP-02 / Compressor Engine 2	1.39	6.09	2.78	12.18	4.17	18.26	0.05	0.22	0.01	0.04			0.58	2.54	0.01	0.03
FUG / Site Fugitives	2.00	8.79									<0.01	<0.01			0.02	0.09
REB-1 / Glycol Reboiler 1	<0.01	0.01	0.05	0.22	0.04	0.18	<0.01	0.02	<0.01	<0.01			<0.01	<0.01	<0.01	<0.01
REB-1/DEHY-SV / Glycol Dehy Still Vent	0.78	3.41									0.01	0.05			0.04	0.17
FL-3/TK-19 / Condensate Storage Tank (Baker)	1.47	5.15									<0.01	<0.01			0.01	0.01
FL-3/TK-20 / Produced Water Storage Tank (Baker)	0.04	0.17									<0.01	<0.01			<0.01	<0.01
TK-AF / Antifreeze Liquid Storage	0.50	0.01														
TK-LO / Lube Oil Liquid Storage	<0.01	<0.01														
TK-SCAV / H_2S Scavenger Liquid Storage	<0.01	<0.01														
VRU/TRUCK1 / Condensate and Slop Tank Truck Loading (Sugarkane)	0.63	0.47													<0.01	<0.01
VRU/TRUCK2 / Produced Water Tank Truck Loading (Sugarkane)	0.01	<0.01													<0.01	<0.01
FL-3/TRUCK3 / Condensate Tank Truck Loading (Baker)	1.58	0.72													0.01	<0.01
FL-3/TRUCK4 / Produced Water Tank Truck Loading (Baker)	0.02	<0.01													<0.01	<0.01
FL-1 / Flare Combustion (assist and pilot)	0.01	0.04	0.22	0.97	0.45	1.97	<0.01	<0.01	0.03	0.13	<0.01	<0.01			<0.01	<0.01
FL-2 / Flare Combustion (assist and pilot)	0.01	0.04	0.22	0.97	0.45	1.97	<0.01	<0.01	0.03	0.13	<0.01	<0.01			<0.01	<0.01
FL-3 / Flare 3 (Baker waste gas, assist and pilot)	0.01	0.04	0.81	2.34	1.62	4.70	<0.01	<0.01	0.04	0.15	<0.01	<0.01			<0.01	<0.01
Scheduled Maintenance, Startup and Shutdown Events																
COMP-01-SV / Compressor Engine 1 Starter Vent	16.88	0.44									0.02	<0.01			0.07	<0.01
FL-1-SMSS/COMP-01-BD / Compressor Engine 1 Blowdown	0.26	0.01									<0.01	<0.01			<0.01	<0.01
COMP-02-SV / Compressor Engine 2 Starter Vent	16.88	0.44									0.02	0.02			0.07	<0.01
FL-1-SMSS/COMP-02-BD / Compressor Engine 2 Blowdown	0.24	0.01									<0.01	<0.01			<0.01	<0.01
FL-2-SMSS /TK-01 thru TK-08 / Condensate Tanks at Sugarkane (during VRU downtime)	2.14	1.10									<0.01	<0.01			0.01	<0.01

TECHNICAL REVIEW: AIR QUALITY STANDARD PERMIT FOR OIL AND GAS HANDLING AND PRODUCTION FACILITIES

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FL-02-SMSS/TK-09 / Slop Tank at Sugarkane (during VRU downtime)	0.18	0.05													<0.01	<0.01
FL-2-SMSS/TK-10 thru TK-18 / Produced Water Tank at Sugarkane (during VRU downtime)	0.08	0.03									<0.01	<0.01			<0.01	<0.01
FL-2-SMSS/TRUCK1 / Condensate and Slop Tank Truck Loading at Sugarkane (during VRU downtime)	1.58	0.09													0.01	<0.01
FL-2-SMSS/TRUCK2 / Produced Water Tank Truck Loading at Sugarkane (during VRU downtime)	0.02	<0.01													<0.01	<0.01
FL-1-SMSS / Flare 1 (engine blowdown waste gas)			0.24	0.01	0.48	0.01	<0.01	<0.01	0.04	<0.01						
FL-2-SMSS / Flare 2 (tanks waste gas during VRU downtime)			0.80	0.30	1.59	0.58	<0.01	<0.01	0.04	0.02						
TOTAL EMISSIONS (TPY):		**33.60**		**29.91**		**47.07**		**0.46**		**0.52**		**0.08**		**3.72**		**0.35**

MAXIMUM OPERATING SCHEDULE:	**Hours/Day**	24	**Days/Week**	7	**Weeks/Year**	52	**Hours/Year**	8760

	TECHNICAL REVIEWER	PEER REVIEWER	FINAL REVIEWER
SIGNATURE:			
PRINTED NAME:	Ms. Sally Bittick		Ms. Anne Inman, P.E., Manager
DATE:	March 19, 2013		March 19, 2013

BASIS OF PROJECT POINTS	POINTS
Base Points:	2.50
Project Complexity Description and Points:	
Completed project in 14 days or less	1.00
NO_2 NAAQS 1-hr Screen	1.00
Extra EPN's	2.00
Extra calculations	1.00
Technical Reviewer Project Points Assessment:	7.50
Final Reviewer Project Points Confirmation:	